ENTOMOLOGICAL NEWS, containing the description of *Kloneus babayaga,* was mailed at the post-office at Philadelphia, May 4, 1923.

The type of *Oberthurion harrowerii* Clark was borrowed for study and description by B. Preston Clark, September 25, 1922, and has not been returned to the Academy of Natural Sciences of Philadelphia.

The Occurrence of Nygmata in the Wings of Insecta Holometabola.

By WM. T. M. FORBES, Ithaca, New York.

(Plate V.)

It is well known that the majority of Trichoptera possess two small, apparently glandular spots on the wings, one located in the base of cell R4, and the other, somewhat less universally in cell M. Navas has christened these structures "nigmas," according to the reformed spelling of Spanish. In English we should follow the spelling of the Greek word and call them "nygmata" (singular "nygma"). The word means merely a spot or puncture, and that is all that is really known of them. On account of their presence near the center of the wing, and tendency to be absent in small species, one may suspect them of being moulting fluid glands for the imaginal moult, but I believe there is no evidence whatever on the case.

Finding that essentially the same structures are also present in the sawflies, I made a systematic search of the principal groups of insects, with the following result.

Nygmata are present in a large proportion of species of the Neuroptera (including the Planipennia), Trichoptera, Panorpata, and the Chalastogastrous Hymenoptera. They are absent in all the Hemimetabola examined, and also in the Lepidoptera and Diptera. They are also absent from the wings of Coleoptera, but the question may be raised if some of the various structures on the elytra of Coleoptera may not be homologous.

The position of the nygmata is definite in any one group, but occasionally they are present or absent in closely related forms, especially in the Hymenoptera, where they are frequently weakly developed. The various families of an order have simi-

lar arrangements, but the various orders have less in common. The following list summarizes their occurrence:

NEUROPTERA.

Sialidae: Cells R, R5, and M; sometimes more than one in a cell; sometimes none in cell M (fig. 2); absent in *Sialis*.

Ithonidae, Dilaridae, Polystoechotidae, Osmylidae (fig. 3), and the isolated genus *Porisma;* cells homologous to R4 and to R.

Psychopsidae: cell R only, and very close to base of wing.

Sialinae, Raphidiidae, Mantispidae, Sisyridae, Sympherobiidae, Hemerobiidae, Berothidae, Chrysopidae, Myrmeleonidae, Nemopteridae, Ascalaphidae, and Coniopterygidae: nygmata absent.

TRICHOPTERA.

Present in cells R4 and M; frequently absent.

PANORPATA.

Panorpa and *Panorpodes*: cells R, R5 and Cu (fig. 6).

Bittacus: cells R and R5 only (figs. 4, 5).

Merope: and apparently *Notithauma*: nygmata absent.

HYMENOPTERA.

Siricidae: second and third submarginal cells, median, third discoidal of Cresson (sometimes called first discoidal), submedian. Frequently with two nygmata in a single cell, and occasionally with three.

Xyelidae, Lydidae (fig. 1): second and third submarginal, median, first lanceolate. Weak and frequently absent in part.

Xiphydriidae: second submarginal and sometimes median only.

Tenthredinidae: second and third submarginals, or more often second submarginal only; median.

Blasticotomidae, Megalodontidae: second and third submarginals, median.

Cephidae: at base of second submarginal only.

Oryssidae and Clistogastra: absent so far as examined.

It will be noted that the Hymenoptera have the most complete set of any single order. While the homologies of the cells to those in other orders is not at all certain, the following coincidences can be recognized: cell M (median), in Hymenoptera, Trichoptera and a few Sialidae, but not in other Neuroptera, or Panorpata; cell R5 (second submarginal ?), in Hymenop-

tera, Sialidae, and Panorpata, but not in Trichoptera; cell Cu (submedian) in Hymenoptera and Panorpata only; cell 2dA (lanceolate) in Hymenoptera only. The most persistent nygma in other orders is the one in cell R, but this is not to be expected in the Hymenoptera as almost the whole of that cell is obliterated by the fusion of R and M.

In the figures I have indicated the position of nygmata as closely as possible, but have exaggerated their size.

Explanation of Figures in Plate V.

1. Hymenoptera, Lydidae, *Lyda.*
2. Neuroptera, Sialidae, *Chauliodes pectinicornis.*
3. Neuroptera, Osmylidae, *Osmylus tuberculatus.*
4, 5. Panorpata, Bittacidae, *Bittacus* (with bases of wings, more enlarged).
6. Panorpata, Panorpidae, *Panorpodes.*

Note on Phaedrotes piasus Bdv. (Lepid. : Lycaenidae).

By Wm. Barnes and F. H. Benjamin, Decatur, Illinois.

In a recent paper (1923 Ent. News XXXIV, 295-300) Mr. K. R. Coolidge requests that someone publish on the distinctions between the various races of *P. piasus.*

This has already been discussed by Dr. McDunnough (1914, Ent. Rec., XXVI, (9), 201).

There are obviously three races of the species. One is found in the mountainous regions of California, and has the underside pale grey, in general the white area rather diffuse and the subterminal lunules rather poorly defined, seldom showing any orange at the anal angle of the secondaries. This is *P. piasus piasus* Bdv., according to M. Oberthür's figure of Boisduval's type. Specimens must be compared with the types of *sagittigera* Feld., and *viaca* Edw. to be sure that these have been correctly placed. Felder's figure, however, seems to place the name; notes in a manuscript catalogue read: "Collected by Lorquin; locality indefinite; probably received thru Boisduval."

The type of *viaca* Edw. may be in the Carnegie Museum, but Dr. McDunnough evidently failed to find it. Notes read: "Type locality Sierra Nevada, California, ♂, ♀ Carnegie Museum." In view of the locality and original description and